



UNITED STATES PATENT AND TRADEMARK OFFICE

SR
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/828,237 | 04/09/2001 | Michihiro Ohsuge | Q63851 | 5626 |
| 7590 | 08/13/2004 | | EXAMINER | |
| SUGHRUE, MION, ZINN, MACPEAK & SEAS 2100 Pennsylvania Avenue, N.W. Washington, DC 20037 | | | WARE, CICELY Q | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2634 | |

DATE MAILED: 08/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|-----------------|-----------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/828,237 | OHSUGE, MICHIRO |
| Examiner | Art Unit | |
| Cicely Ware | 2634 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 09 April 2001.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 8 is/are allowed.
- 6) Claim(s) 1-3,5-7 and 9-16 is/are rejected.
- 7) Claim(s) 4 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 09 April 2001 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to because:

a. Fig. 2, element 10, applicant uses MOLTI-PATH DETECTING. Examiner assumes MULTI-PATH DETECTING.

Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:**
 - a. Pg. 2, lines 12 and 15, applicant uses "pathes". Examiner assumes "paths". Applicant uses this word throughout the disclosure. Examiner suggests applicant correct all instances for clarification purposes.
 - b. Pg. 2, lines 26-27, examiner suggests applicant re-write these lines for clarification purposes.
 - c. Pg. 6, line 17, Pg. 7, lines 2 and 22, applicant uses "CDMS". Examiner assumes "CDMA".

Appropriate correction is required.

3. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

4. Claims 1, 7, 9, 10 and 11 are objected to because of the following informalities:
 - a. Claim 1, line 2, applicant uses "delayed profile". Examiner suggests applicant use "delay profile" for clarification purposes. Applicant uses the phrase throughout the claims examiner suggests applicant correct all instances.
 - b. Claim 7, line 2, applicant uses the phrase "pathes to be allotted to RAKE finger". Examiner suggests applicant use "path to be allotted to RAKE fingers" for clarification purposes.

Art Unit: 2634

- c. Claim 9, line 18, applicant uses "alloting". Examiner suggests using "allotting".
- d. Claim 9, line 18, applicant uses "pathes". Examiner assumes "paths".
- e. Claim 9, line 20, applicant has inserted a period. Examiner suggests using a semi colon (;) to reference that the claim has continuing parts.
- f. Claim 10, line 1, applicant uses "CDMS". Examiner assumes "CDMA".
- g. Claim 10, line 13, applicant uses "RKE". Examiner assumes "RAKE".
- h. Claim 11, line 1, applicant uses "CDMS". Examiner assumes "CDMA".
- i. Claim 11, line 13, applicant uses "RKE". Examiner assumes "RAKE".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

- 5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

- 6. Claims 5, 12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 5, 12 and 13 recite "about 10msec.", and "about 100msec.". About is vague and indefinite because it does not reference a definite boundary for the limitations in the claim.

- 7. Regarding claim 9 the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention.

See MPEP § 2173.05(d).

Art Unit: 2634

8. The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

a. With regard to claim 9, claim 9 recites "executing instantaneous delayed profile measurement by calculating correlation of spread codes and received signal to one another". Examiner suggests re-writing this paragraph for clarification purposes.

b. Claim 9 recites, "averaging the delayed profile for time such as to be able to smooth noise". Examiner suggests re-writing these lines for clarification purposes. Examiner suggests applicant explain what is meant by delayed profile for time.

c. Claim 9 recites, "allotting newly detected new paths the fingers presently out of use or in the order of lower reception power level fingers". Examiner suggests applicant re-write these lines for clarification purposes.

9. Claim 9 recites the limitation:

- a. "the short period averaging", in line 9.
- b. "the difference of the long period averaged", in line 11-12.
- c. "the fingers", in line 18.

There is insufficient antecedent basis for these limitations in the claim.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1, 3 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Kondo (US Patent 6,178,193).

The applied reference has a common assignee with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

(1) With regard to claim 1, Kondo discloses a multi-path detecting circuit for detecting multi-path timings by measuring a delayed profile of a propagation channel, comprising: a short period delayed profile averaging part and a long period delayed profile averaging part for averaging the delayed profile to two different, i.e., short and long, cycle periods, respectively (col. 1, lines 33-40, col. 4, lines 42-43, col. 5, lines 13-14, col. 6, lines 1-12, 15-17).

(2) With regard to claim 3, claim 3 inherits all the limitations of claims 1 or 2.

Kondo further discloses in (Fig. 2 (A12)) a long period profile storing part for storing the output of the long period delayed profile averaging part (col. 6, lines 1-9).

(3) With regard to claim 7, Kondo discloses in (Fig. 1 and Fig. 2) a multi-path detecting system for determining paths to be allotted to RAKE fingers (Fig. 1 (31-1, 31-2, 31-3)) on the basis of combination (17) of a long period averaged delayed profile for averaging level variations due to fading and a short period averaged delayed profile for fast detecting new path generation (Fig. 2 (A15), col. 6, lines 1-9).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 2, 6, 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo (US Patent 6,178,193) as applied to claim 1, 3 and 4, in view of Baker et al. (US Patent 6,163,563).

(1) With regard to claim 2, claim 2 inherits all the limitations of claim 1. Kondo discloses in (Fig. 1) a threshold checking part (15) for receiving the output of the short period delayed profile averaging part (15) and checking whether the output exceeds a threshold value, a correlation peak retrieving part (18) for receiving the output of the

long period delayed profile averaging part (15) and retrieving upper rank correlation peaks for every correlation profile (col. 4, lines 55-63, col. 5, lines 17-20, 27-39, col. 8, lines 30-37).

However Kondo does not disclose a finger timing determining part for receiving the outputs of the correlation peak retrieving part and the threshold checking part.

However Baker et al. discloses in (Fig. 16) a finger timing determining part for receiving the outputs of the correlation peak retrieving part (210) and the threshold checking part (212) (col. 2, lines 21-30, col. 4, lines 45-48, col. 7, lines 45-61, col. 13, lines 64-67, col. 14, lines 1-5).

Therefore it would have been obvious to one of ordinary skill in the art to modify Kondo to incorporate a finger timing determining part for receiving the outputs of the correlation peak retrieving part and the threshold checking part in order to perform three types of correlations, in a periodic manner, for each finger and determine whether the largest (peak) correlation has occurred (Baker et al., col. 7, lines 51-52, col. 13, line 67 col. 14, line 1).

(2) With regard to claim 6, claim 6 inherits all the limitations of one of claims 1 or 2. Baker et al. further discloses a CDMA receiver having a RAKE finger part, to which the timing output from the finger timing determining part is supplied (col. 1, lines 35-38, col. 2, lines 30-34, col. 7, lines 45-61, col. 13, lines 64-67, col. 14, lines 1-5).

(3) With regard to claim 14, claim 14 inherits all the limitations of claims 3 and 6.

(4) With regard to claim 15, claim 15 inherits all the limitations of claims 4 and 6.

(5) With regard to claim 16, claim 16 inherits all the limitations of claims 5 and 6.

Art Unit: 2634

14. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takakusaki (US Patent 6,158,329) in view of Kondo (US Patent 6,178,193).

(1) With regard to claim 10, Takakusaki discloses in (Fig. 3) a CDMA receiver using the multi-path detecting circuit comprising: an antenna part (11) for receiving radio transmitted data (12); a high frequency signal receiving circuit for frequency converting the received signal (abstract, col. 1, lines 5-8,12-17, col. 2, lines 26-29).

However Takakusaki does not disclose an A/D converter part for converting the output of the high frequency signal receiving circuit from analog signal to digital signal; the multi-path detecting circuit for receiving signal from the A/D converter part, detecting multi-path timing and determining the detected multi-path timing as reception timing input to RAKE finger part; and a RAKE synthesizing part for synthesizing data from the RAKE finger part as received at each timing.

However Kondo discloses in (Fig. 1) an A/D converter part (12) for converting the output of the high frequency signal receiving circuit from analog signal to digital signal (12); the multi-path detecting circuit (30) for receiving signal from the A/D converter part, detecting multi-path timing and determining the detected multi-path timing as reception timing input to RAKE finger part; and a RAKE synthesizing part (32) for synthesizing data from the RAKE finger part as received at each timing.

Therefore it would have been obvious to one of ordinary skill in the art to modify Takakusaki to incorporate an A/D converter part for converting the output of the high frequency signal receiving circuit from analog signal to digital signal; the multi-path

detecting circuit for receiving signal from the A/D converter part, detecting multi-path timing and determining the detected multi-path timing as reception timing input to RKE finger part; and a RAKE synthesizing part for synthesizing data from the RAKE finger part as received at each timing in order to improve reception characteristics by enabling obtaining of an integration period of an optimal correlated value even upon variation of fading period (Kondo, col. 2, lines 38-42).

(2) With regard to claim 11, claim 11 inherits all the limitations of any one of claims 7-10.

Allowable Subject Matter

15. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. Claim 8 is allowed.

17. The following is a statement of reasons for the indication of allowable subject matter: The instant application discloses a multi-path detecting circuit for detecting multi-path timings by measuring a delayed profile of a propagation channel. Prior art references show similar methods but fail to teach a subtracter for subtracting a difference from the stored long period averaged delayed profile whenever the short period averaged delayed profile is outputted; a threshold checking part for outputting data of paths to be added when the difference from the subtracter exceeds a predetermined threshold value.

Art Unit: 2634

Conclusion

18. The prior made record of and not relied upon is considered pertinent to applicant's disclosure:

a. Lundby et al. US Patent 6,625,197 discloses a method and apparatus for multipath demodulation in a code division multiple access communication system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cicely Ware whose telephone number is 703-305-8326.

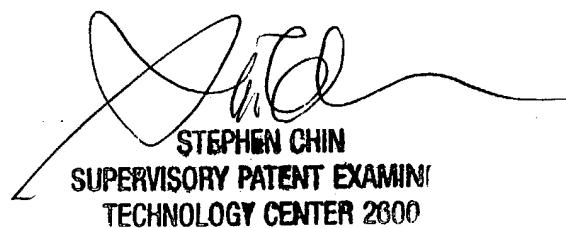
The examiner can normally be reached on Monday – Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Cicely Ware

cqw
August 2, 2004



STEPHEN CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600